

**AMENDMENTS TO THE CLAIMS**

1-6. (Cancelled)

7. (Cancelled)

8. (Currently amended) The system of claim [[7]] 17, wherein the clustering tree is formed by freezing building of the first level of the clustering tree before building the second level of the clustering tree.

9. (Previously presented) The system of claim 8, wherein the clustering tree is further formed by freezing building of the first level of the clustering tree when an entropy level of the first level of the clustering tree is below a predetermined threshold.

10. (Cancelled)

11. (Currently amended) The system of claim [[10]] 17, wherein the clustering tree is further formed by freezing building of the second level of the clustering tree before building the third level of the clustering tree.

12. (Previously presented) The system of claim 11, wherein the clustering tree is further formed by freezing building of the second level of the clustering tree when an entropy level of the second level of the clustering tree is below a predetermined threshold.

13. (Currently amended) The system of claim [[7]] 17, wherein the clustering tree is further built to include terminal nodes that assign each of the groups of sound into one of the sound clusters.

14. (Cancelled)

15. (Currently amended) The system of claim [[7]] 17, wherein the first group of questions includes questions that relate to the series of sounds as a sound being modeled and one context sound before and after the sound being modeled.

16. (Previously presented) The system of claim 15, wherein the second group of questions includes questions that relate to the series of sounds as the sound being modeled and two context sounds before and after the sound being modeled.

17. (Currently amended) A speech recognition system comprising:  
a clustering tree configured to classify a series of sounds into predefined clusters based on one of the sounds and on a predetermined number of neighboring sounds that surround the one of the sounds, where the clustering tree comprises:

a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds,

a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of questions discriminating at a finer level of granularity within the series of sounds than the first group of questions, and

a third level with a third hierarchical arrangement of decision nodes in which the decision nodes of the third hierarchical arrangement are associated with a third group of questions discriminating at a finer level of granularity within the series of sounds than the second group of questions; and

a plurality of speech recognition models trained to recognize speech based on the predefined clusters, ~~each of the plurality of speech recognition models receiving the predefined clusters from a different portion of the clustering tree~~ the plurality of speech recognition models comprising:

a first model associated with the first level and including a triphone non-crossword speech recognition model,

a second model associated with the second level and including a quinphone non-crossword speech recognition model, and

a third model associated with the third level and including a quinphone crossword speech recognition model.

18. (Cancelled)

19. (Currently amended) The system of claim [[18]] 17, wherein higher ones of the hierarchical levels include nodes that correspond to more general questions than questions corresponding to nodes at lower ones of the hierarchical levels.

20. (Cancelled)

21. (Original) The system of claim 17, wherein the sounds are represented by phonemes.

22. (Cancelled)

23. (Original) The system of claim 17, wherein the clustering tree comprises: decision nodes associated with questions that relate to the series of sounds, and terminal nodes that define a sound cluster to which the series of sounds belong.

24. (Currently amended) The system of claim 23, wherein the decision nodes and the terminal nodes are defined hierarchically relative to one another ~~and the decision nodes and the terminal nodes are divided into levels, each of the levels being associated with a different one of the plurality of speech recognition models.~~

25. (Original) The system of claim 24, wherein the decision nodes correspond to lower ones of the levels in the hierarchically defined nodes are associated with more detailed questions than decision nodes corresponding to higher ones of the levels in the hierarchically defined nodes.

26. (Currently amended) A device comprising:

means for classifying a series of sounds into predefined clusters using a clustering tree and based on one of the sounds and a predetermined number of neighboring sounds that surround the one of the sounds, where the clustering tree includes:

a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds;

a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of questions discriminating at a finer level of granularity within the series of sounds than the first group of questions; and

a third level with a third hierarchical arrangement of decision nodes in which the decision nodes of the third hierarchical arrangement are associated with a third group of questions discriminating at a finer level of granularity within the series of sounds than the second group of questions; and

means for training a plurality of speech recognition models to recognize speech based on the predefined clusters, ~~each of the plurality of speech recognition models receiving the predefined clusters from the means for classifying the speech recognition models including:~~

a first model associated with the first level and including a triphone non-crossword speech recognition model,

a second model associated with the second level and including a quinphone non-crossword speech recognition model, and

a third model associated with the third level and including a quinphone crossword speech recognition model.